

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1 1 (Currently Amended). A computer firmware program updating system
2 having a communication function comprising:
3 a first processor which operates by referring to a firmware program
4 stored ~~therein~~ in a flash ROM; and
5 a second processor which monitors an operation of said first
6 processor and executes update of said firmware program by using said
7 communication function with an external unit, and executes an update
8 control of said program when a fault of said first processor is detected.

1 2 (Previously Presented). The program updating system having the
2 communication function according to claim 1,
3 wherein said second processor transmits a reset signal to said first
4 processor for every predetermined number of cycles, and monitors a
5 response pulse which is transmitted from said first processor in response to
6 said reset signal, and transmits a compulsory reset signal to said first
7 processor when said response pulse can not be detected within a
8 predetermined period.

1 3 (Previously Presented). The program updating system having the
2 communication function according to claim 2, further comprising:
3 an activation pulse generating circuit which generates an activation
4 pulse to activate said second processor,
5 wherein said second processor starts transmitting said reset signal
6 in response to said activation pulse outputted from said activation pulse
7 generating circuit.

1 4 (Currently Amended). The program updating system having the
2 communication function according to claim 3, further comprising:

3 a buffer which transiently stores ~~said~~ a program to be used for
4 executing said firmware program update ~~control~~, wherein said second
5 processor transfers said program stored in said buffer to said first processor
6 for writing into said flash ROM, after an operation of storing said program
7 in said buffer is completed.

1 5 (Currently Amended). The program updating system having the
2 communication function according to claim 1, further comprising:
3 an activation pulse generating circuit which generates an activation
4 pulse to activate said second processor,
5 wherein said second processor starts transmitting ~~said~~ a reset signal
6 to said first processor in response to said activation pulse outputted from
7 said activation pulse generating circuit.

1 6 (Currently Amended). The program updating system having the
2 communication function according to claim 5, further comprising:
3 a buffer which transiently stores ~~said~~ a program for executing said
4 firmware program update ~~control~~, wherein said second processor transfers
5 said program stored in said buffer to said first processor for writing into
6 said flash ROM, after an operation of storing said program to said buffer is
7 completed.

1 7 (Currently Amended). The program updating system having the
2 communication function according to claim 1, further comprising:
3 a buffer which transiently stores ~~said~~ a program for executing said
4 firmware program update ~~control~~, wherein said second processor transfers
5 said program stored in said buffer to said first processor for writing into
6 said flash ROM, after an operation of storing said program to said buffer is
7 completed.

1 8 (Original). The program updating system having the communication
2 function according to claim 2, further comprising:

3 an activation monitoring circuit which generates an activation pulse
4 to activate said second processor and monitors transmission of an
5 activation response pulse which is outputted from said second processor in
6 response to said activation pulse,

7 wherein said activation monitoring circuit transmits a compulsory
8 reset signal to said second processor when said activation response pulse
9 can not be detected within the predetermined period.

1 9 (Currently Amended). The program updating system having the
2 communication function according to claim 8, further comprising:

3 a buffer which transiently stores ~~said~~ a program for executing said
4 firmware program update ~~control~~, wherein said second processor transfers
5 said program stored in said buffer to said first processor for writing into
6 said flash ROM, after an operation of storing said program to said buffer is
7 completed.

1 10 (Currently Amended). The program updating system having the
2 communication function according to claim 1, further comprising:

3 an activation monitoring circuit which generates an activation pulse
4 to activate said second processor and monitors transmission of an
5 activation response pulse outputted from said second processor in response
6 to said activation pulse,

7 wherein said activation monitoring circuit transmits a compulsory
8 reset signal to said second processor when said activation response pulse
9 can not be detected within ~~the~~ a predetermined period.

1 11 (Currently Amended). The program updating system having the
2 communication function according to claim 10, further comprising:

3 a buffer which transiently stores ~~said~~ a program for executing said
4 firmware program update ~~control~~, wherein said second processor transfers
5 said program stored in said buffer to said first processor for writing into
6 said flash ROM, after an operation of storing said program to said buffer is

7 completed.

1 12. (Currently Amended) A computer firmware program updating method
2 using a communication function, comprising:

3 providing a first processor which operates by referring to a
4 firmware program stored therein in a flash ROM and a second processor;
5 transmitting a reset pulse from said second processor to said first
6 processor;

7 transmitting a response pulse from said first processor to said
8 second processor in response to said reset signal which is outputted from
9 said second processor; and

10 transmitting a compulsory reset signal from said second processor
11 to said first processor to stop an operation of said first processor when said
12 response pulse can not be detected within a predetermined period.

1 13 (Currently Amended). The program updating method using the
2 communication function according to claim 12, ~~wherein~~ further
3 comprising:

4 transferring by said second processor ~~transfers said a~~ program
5 obtained by using said communication function to said first processor for
6 writing into said flash ROM, during a stop of said first processor.

1 14 (Currently Amended). The program updating method using the
2 communication function according to claim 13, further comprising:

3 providing an activation control circuit which controls activation
4 and a stop of said second processor,

5 ~~wherein~~ transmitting by said second processor ~~transmits~~ an
6 activation response pulse to said activation control circuit for every
7 predetermined number of cycles, and

8 executing by said activation control circuit ~~executes~~ a stop control
9 of said second processor, when said activation response pulse can not be
10 detected within a predetermined period.

1 15 (Currently Amended). The program updating method using the
2 communication function according to claim 12, further comprising:
3 providing an activation control circuit which controls activation
4 and a stop of said second processor, ~~wherein:~~
5 transmitting by said second processor ~~transmits~~ an activation
6 response pulse to said activation control circuit for every predetermined
7 cycles; and
8 executing by said activation control circuit ~~executes~~ a stop control
9 of said second processor, when said activation response pulse can not be
10 detected within a predetermined period.